Original Article

Depressive disorder in rheumatoid arthritis: the more joint's distressed, the more severely depressed

Fatemeh Sadate Ghoreishi[1], Batool Zamani[*2], Mohammadreza Razzaghof[3]

1. Department of Psychiatry, Assistant Professor of Kashan University of Medical Sciences, Kashan, Iran.
2. Department of Rheumatology, Associate Professor of Kashan University of Medical Sciences, Kashan, Iran.
3. Medical Student of Tehran University of Medical Sciences, Tehran, Iran.
**Corresponding author: Batool Zamani, Rheumatologist, Associate Professor of Kashan University of Medical Sciences, Kashan, IR Iran. dr.zoghoreishi@yahoo.com*

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Abstract

Introduction: Rheumatoid arthritis (RA) is a chronic debilitating disease with a known association with depression. Disease activity and number of affected joints presumptively influence depression. This study was prepared to determine the prevalence of depressive disorder, its severity, and associated factors in RA patients.

Methods: This cross-sectional study was conducted from April-2013 to August-2014. A total of 81 patients with RA were selected by purposive sampling technique from the rheumatology clinic of Shahid-Beheshti hospital, Kashan, Iran. The Severity of depressive disorder was measured by Beck Depression Inventory (BDI), and the diagnosis of depressive disorder was confirmed by a psychiatrist based on DSM-IV-TR. Data was analyzed by chi-square and Fischer's exact tests.

Results: Findings showed that 22.2% of patients had some degree of depression. More than half of them (55.5%) had severe depression, with the rest having moderate (16.7%) and mild (27.8%) severity of depression. There was no significant relationship between depression and demographic factors, and joint deformity. However, the relationship between depression and number of affected joints was statistically significant. Those patients with seven or more affected joints had a higher rate of depression than those with six or less.

Conclusion: According to the considerable prevalence of depressive disorder in RA patients in our study, its early screening by BDI and clinical interview is recommended. Those with seven or more affected joints were found to have a higher risk of severe depressive disorder and so need special care.

Declaration of interest: None.

Key words: Arthritis,Rheumatoid, Depressive disorder, Joints.

Introduction

Rheumatoid Arthritis (RA) is a chronic systemic inflammatory disease of human being, which primarily attacks the joints. The chronic, painful, and debilitating nature of the disease has imposed profound impacts on patients qualify of lives, in particular, their psychological and social function. (1) The souvenirs of the disease, such as pain, fatigue, and the limitation of motion, cause physical, social, psychological, and emotional disorders. (2)

Rheumatoid arthritis is often associated with depression. In a study of RA patients in Australia, 14.9 % of adults reported problems in their mental health and in comparison with controls they had moderate or highly level of anxiety and depression. (3) The prevalence of self-reported depression in RA patients ranges from 13 to 30 percent in another study. (4) However, the likelihood of depression was 6.3 % in general population and 13% community-based clinic in US. (5, 6) In a study completed by Atapoor et al., in Kerman, Iran in 2002, 83 % of RA patients had some level of depression. (7) In another study by Waheed et al., in 2006, the prevalence of depressive disorders in RA patients was 65.8%. (8) In Canada in 2008 Azad et al., also found that 56% of RA patients had depressive disorders. (9)

In the same way, the prevalence of major depression disorder (MDD) in RA patients was measured to be 6.8% by Sato et al., in 2012. (10)
Depression in RA patients is presumptively influenced by joint pain, the disease activity, physical disability, and lack of social support. (11-14) Cytokines like tumor necrosis factor α (TNF-α), interleukins 1 and 6 (IL-1, IL-6), and interferon γ (IFN-γ) have been demonstrated to be involved in the etiology and pathophysiology of depression in RA.(15, 16)
It was shown that depression affects the patients' perception of their disease and sense of well-being in RA. (17) Psychological factors can also lead to discrepancies between RA patients and their physicians' view of the disease.(18, 19) Furthermore, affective issues arising during the course of a physical disorder affects its long-term prognosis via cognitive and behavioral processes with specific and non-specific biological responses.(20) Therefore, it is of great importance for physicians to assess the psychological state of RA patients, besides their physical state, for a better management of the disease. (21) The anxiety and depression in RA patients are associated with high level of suicidality and increased mortality rate. The depression itself leads further to the incapability of these patients to cope with their chores. The routine medical management of RA is more concentrated on clinical manifestations of the disease rather than psychological problems of these patients. It has been recently elucidated that thorough management of RA patients necessitates team-based therapy, which deals with psychological disorders simultaneous with medical management of RA.(22)
To our knowledge, few studies have so far studied the relationship between the number of affected joints and the severity of depressive disorder in RA patients. (23, 24)
This study was aimed to assess the prevalence of depressive disorder, its severity, and associated factors in patients with active RA. This can aid in earlier diagnosis and treatment of their depressive disorder, better control of their physical disease, and improvement of their quality of life.

Methods

This cross-sectional study was performed in the rheumatology clinic of Kashan Shahid-Beheshti hospital from April 2013 to August 2014. A total of 81 patients with rheumatoid arthritis (RA) were studied to assess the frequency of depressive disorder, its severity and its related factors. Rheumatoid arthritis was diagnosed according to American College of Rheumatology (ACR) 1987 criteria by a qualified Rheumatologist. The patients were selected by purposive sampling technique. The study and its objectives were completely explained for each patient and they voluntarily chose to participate in the study. Patients not willing to give written consent or those having malignancies or any other associated diseases were excluded. Signed informed consent was obtained from the patients and confidentiality was maintained. The Beck Depression Inventory (BDI) was used for severity of depression. It is a 21-question multiple-choice self-report inventory created by Aaron T. Beck in 1960. The concurrent validity was measured 73-92% and its test-retest reliability 48-68%. The global score ranges from 0 to 63, with the scoring: 0-15 as no depression, 16-30 mild, 31-46 moderate, and ≥47 severe depression. (25) Thus, the cut-off point of 15 was used for the definition of depression. The diagnosis of depression was confirmed by clinical interview based on the Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM-IV-TR).
The demographic factors were age, sex, marital status, job, socio-economic status, and place of residence and clinical factors included the number of affected joints and joint deformity.
Data was analyzed using SPSS-16 software. Descriptive statistics were obtained for all the patients. Chi-square and Fischer's exact tests were used to analyze the association between independent and dependent variables. The Ethic Committee of Kashan University of Medical Sciences approved the study. All ethical issue such as informed consent, plagiarism, double publication and/or submission was considered. The respondents were anonymous and participated willingly in this study.

Results

Out of 81 Rheumatoid arthritis, 46.9 % were within the 31-40 range age group. 86.4% of patients were female and 13.6% male, 93.8% were married and 6.2% single. The other patients' demographic data are shown in table 1.

Table 1. The frequency of demographic factors in RA patients

Demographic factor	Age			Marital status		Job		Residence		Economic status		Joint deformity	
	31-40	40-59	≥ 60	Married	Single	Employed	Unemployed	Urban	Rural	High level	Low level	+	-
Factors Frequency	38 (46.9 %)	35 (43.3 %)	8 (9.8 %)	76 (93.8 %)	5 (6.2 %)	71 (87.6 %)	10 (12.3 %)	63 (77.8 %)	18 (22.2 %)	29 (35.8 %)	52 (64.2 %)	38 (46.9 %)	43 (53.1 %)

The results of severity of depression as measured by Beck Depression Inventory (BDI) are as follows: out of 81 patients, 22.2 % of patients had some degree of depression. More than half the RA patients with depression (55.5 %) were found to have severe depression, 16.7 % had moderate depression and 27.8 % had mild depression.

The statistical analysis of demographic data and depression frequency proved no statistically significant relationship between depression and age, sex, marital status, job, economic status, and joint deformity ($p > 0.05$). However, the relationship between depression and the number of affected joints was found to be statistically significant ($p = 0.02$), so that those patients with seven or more affected joints had a higher rate of depression than those with six or less (Table 2).

Table 2. The frequency of depression in RA patients in terms of demographic variables, joint deformity, and number of affected joints

Variables	Groups	Depression	No depression	P-value
Age	31-40	8 (21%)	30 (79%)	> 0.05
	40-59	9 (25.7%)	26 (74.3%)	
	≥ 60	1 (12.5%)	7 (87.5%)	
Sex	Male	3 (27.3%)	8 (72.8%)	0.70
	Female	15 (21.4%)	55 (78.6%)	
Marital status	Married	18 (23.7%)	58 (76.3%)	5.28
	Single	0	5 (100%)	
Job	Employed	15 (21.1%)	56 (78.9%)	0.68
	Unemployed	3 (30%)	7 (70%)	
Residence	Urban	14 (22.2%)	49 (77.8%)	1.00
	Rural	4 (22.2%)	14 (77.8%)	
Economic status	High level	15 (28.8%)	37 (71.2%)	0.55
	Low level	3 (10.3%)	26 (89.7%)	
Joint deformity	+	9 (23.7%)	29 (76.3%)	0.46
	-	9 (20.9%)	34 (79.1%)	
Number of affected joints	2	2 (25%)	6 (75%)	0.02
	3	1 (33.3%)	2 (66.7%)	
	4	10 (27.8%)	26 (72.2%)	
	5	6 (50%)	6 (50%)	
	6	5 (41.7%)	7 (58.3%)	
	≥ 7	7 (70%)	3 (30%)	

The significance level was defined as $P<0.05$.

Conclusion

The current study has been carried out in order to investigate depressive disorder and its related factors in rheumatoid arthritis patients. In this study the prevalence of depressive disorder in RA patients was 22.2 %, which in comparison with the prevalence of depression in Kashan general population, 8.2 % in 2008, is much higher.(26) Furthermore, the prevalence of depression in American population based on DSM-IV and Europe based on Beck Depression Inventory were measured to be 6.31 % and 8.56 %, respectively. (6, 27) The higher rate of depression in RA patients, found in this study, compared with the prevalence of depression in different populations would indicate the chronic and debilitating nature of the disease, and of course the influence of different diagnostic tools. However, comparing our findings with similar studies like Atapoor et al., in Kerman, Iran (2000), Waheed et al., in Pakistan (2006), and Azad et al., in Canada (2008), which measured the prevalence of depression among RA patients as 83 %, 65.8 %, and 56%, respectively, we had lower level of depression.(7-9) Nevertheless, the rate of prevalence in our study is consistent with the finding of Creed et al., which measured the prevalence as 23.5 % and higher than that of Ho et al., study in Singapore as 15 %.(28, 29) It is evident that the prevalence rate in the majority of studies examining the prevalence of depression in RA patients is higher than the finding of this study, which is presumptively due to the effect of using different diagnostic tools.(30) That is to say, Beck Depression Inventory first screened RA patients in current study and those obtaining a score of more than 15 went through a clinical interview by a psychiatrist to confirm their diagnosis of depression. This is well conceivable that the two-step process of screening patients used in this study could considerably lower the rate of prevalence with regard to studies, which only used the questionnaire without the clinical interview.

This is undeniable that patients with rheumatoid arthritis struggle most of the time to overcome the debilitating nature of their disease and this affects different aspects of their daily life. Therefore, this contributes to high level of anxiety and stress, which probably justifies the finding of this study. Furthermore, the incapability of these patients to fully manage themselves and maintain their previous roles in family, society, and the lack of productive activities are important factors in triggering depression in those affected by RA. In

a longitudinal study of 654 patients with RA, the beginning of depressive symptoms was significantly associated with the incapability of patients in doing household chores such as cooking, social interaction, and creative activities.(30)

In this study, no significant relationship was found between depression and variables like age, sex, job, marital status, and joint deformity, which is in congruence with the results of Ho et al. study (2011), Melikoglu et al., (2010) and Sato et al. (2011) (10, 23, 29)

In our study, a significant relationship between depression and number of affected joints were found, hence that those patients with seven or more affected joints had a higher rate of depression than those with six or less. This is consistent with the results of Khongsaengdao et al. study, in which there was found a significant relationship between number of swollen and tender joints and severity of depressive symptoms measured by Hamilton Rating Scale for Depression (HRSD).(24) However, no correlation has been found between number of tender-swollen joints and depression-measured by BDI in Melikoglu et al. study in 2010.(23) According to the considerable prevalence of depressive disorder in RA patients in our study, it is proposed that clinical interview by a psychiatrist besides Beck Depression Inventory is used to screen RA patients for depressive disorder. The early diagnosis and treatment of depressive disorder in RA patients would improve the quality of life of these patients. As clinical interview by a psychiatrist is used besides Beck Depression Inventory, this approach can also prevent over-diagnosing and unnecessary treatments. It should be noted that those patients with seven or more joints affected were found to be prone to more severe depressive disorder. Thus, this group of patients needs more care and attention for their higher risk of severe depressive disorder.

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